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# मानक

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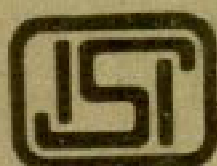


*Indian Standard*

GLOSSARY OF TERMS RELATING TO  
FORK ARMS AND ATTACHMENTS  
OF FORK LIFT TRUCKS

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INDIAN STANDARDS INSTITUTION  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG

NEW DELHI 110002

# Indian Standard

## GLOSSARY OF TERMS RELATING TO FORK ARMS AND ATTACHMENTS OF FORK LIFT TRUCKS

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# *Indian Standard*

## GLOSSARY OF TERMS RELATING TO FORK ARMS AND ATTACHMENTS OF FORK LIFT TRUCKS

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 5 April 1975, after the draft finalized by the Industrial Trucks Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

**0.2** This standard has been prepared for the guidance of the industrialists to enable them to interpret the common terms used in the field of fork lift trucks and their attachments.

**0.3** A comprehensive 'Indian Standard glossary of terms on powered and non-powered trucks' (IS : 4660) was published in 1968. With a view to bring the standard up-to-date and to increase its utility, it is felt desirable to bring under one cover only the terms relating to fork arms and attachments of fork lift trucks.

**0.4** In preparing this standard, assistance has largely been derived from the draft ISO Recommendation 2331 'Fork lift trucks — Fork arms — Terminology', issued by the International Organization for Standardization (ISO).

**0.5** It is hoped that this standard will help in establishing the uniformity of understanding insofar as the field of fork lift trucks is concerned.

### 1. SCOPE

**1.1** This standard covers terms relating to fork arms and attachments of fork lift trucks.

### 2. TERMINOLOGY

**2.1 Types of Forks** — The standard forks are of three different types of construction as shown below:

- a) Type 1 — Standard fork, hook-on type ( *see* Fig. 1 );
- b) Type 2 — Standard fork, hook-on gooseneck type ( *see* Fig. 2 );  
and
- c) Type 3 — Standard fork, shaft mounted type ( *see* Fig. 3 ).

## 2.2 Fork Parts

**2.2.1 Blade** — The horizontal portion of the fork upon which the load is supported ( see 1 in Fig. 1 ).

**2.2.2 Heel** — The angled portion of the fork connecting the blade to the shank ( see 2 in Fig. 1 ).

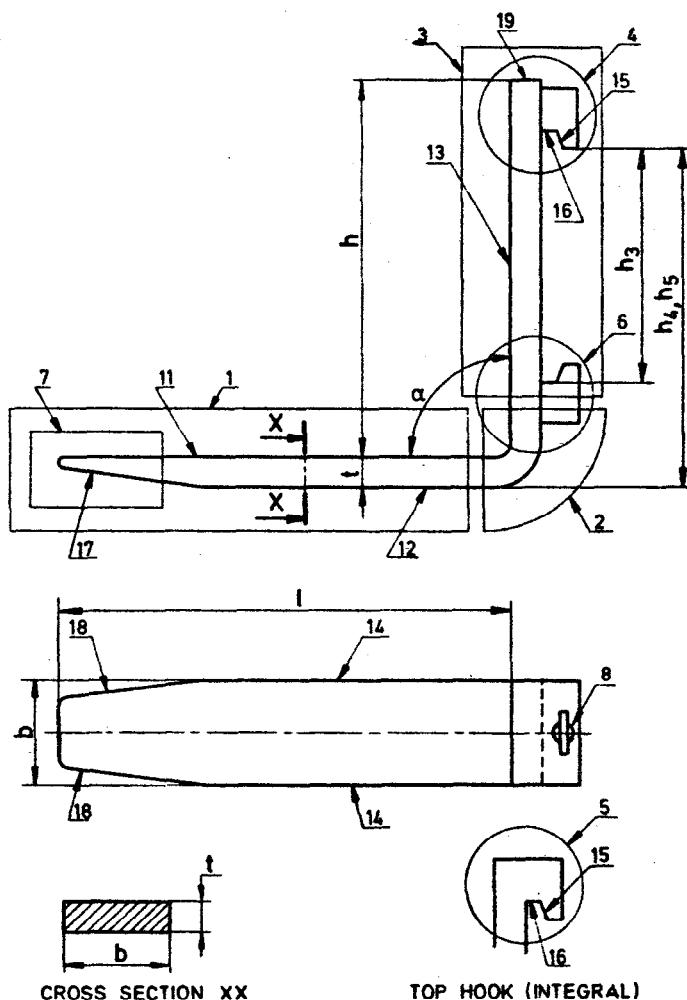


FIG. 1 STANDARD FORK, HOOK-ON TYPE



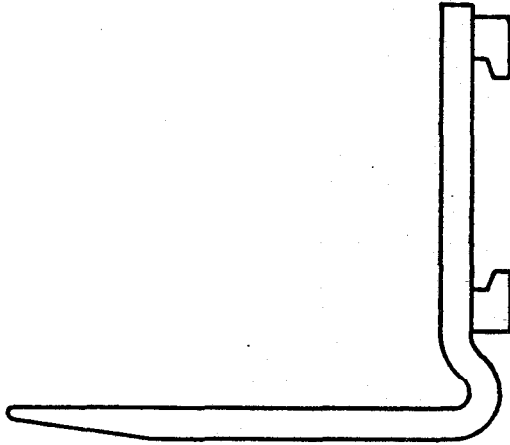


FIG. 2 STANDARD FORK, HOOK-ON GOOSENECK TYPE

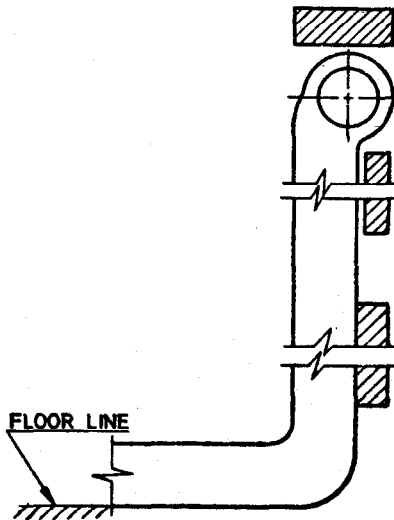


FIG. 3 STANDARD FORK, SHAFT MOUNTED TYPE

**2.2.3 Shank** — The upright portion of the fork carrying the supporting hooks ( see 3 in Fig. 1 ).

**2.2.4 Hooks** — Lugs attached to the shank to support and retain the fork arm ( see 4 and 6 in Fig. 1 ).

**2.2.5 Top Hook (Non-integral)** — The upper hook with which the fork is suspended and which is attached to the shank (see 4 in Fig. 1).

**2.2.6 Top Hook (Integral)** — The upper hook with which the fork is suspended and which is formed integrally with the shank (see 5 in Fig. 1).

**2.2.7 Bottom Hook** — The lower hook which prevents excessive vertical and horizontal movement of the fork (see 6 in Fig. 1).

**2.2.8 Tip** — The free end of the blade (see 7 in Fig. 1).

**2.2.9 Positioning Lock** — Device for locating the fork arm on the carrier (see 8 in Fig. 1).

## 2.3 Fork Surfaces

**2.3.1 Blade, Upper Face** — The upper most surface of the blade on which the load is carried (see 11 in Fig. 1).

**2.3.2 Blade, Lower Face** — Lower surfaces of the horizontal part of the blade (see 12 in Fig. 1).

**2.3.3 Shank, Front Face** — The face of the shank which supports the load, and from which the load centre distance is measured (see 13 in Fig. 1).

**2.3.4 Flanks** — The side faces of the blade and shank (see 14 in Fig. 1).

**2.3.5 Hook Retaining Face** — The inclined face of the top hook (see 15 in Fig. 1).

**2.3.6 Hook Suspension Face** — Horizontal face of top hook (see 16 in Fig. 1).

**2.3.7 Blade Taper** — The lower surface of the blade which is tapered to facilitate insertion of the fork (see 17 in Fig. 1).

**2.3.8 Toe** — The blade flanks which are shaped to facilitate insertion of the fork (the shape may take various forms) (see 18 in Fig. 1).

**2.3.9 Shank, Top** — Upper face of the vertical part (see 19 in Fig. 1).

## 2.4 Fork Dimensions

**2.4.1 Height ( $h$ )** — The distance from the upper face of the blade to the top of the shank (see Fig. 1).

**2.4.2 Length ( $l$ )** — The length of the blade measured from the front face of the shank (see Fig. 1).

**2.4.3 Width ( $b$ )** — The width of the parallel portion of the blade (see Fig. 1).

**2.4.4 Thickness ( $t$ )** — The thickness of the parallel portion of the blade (see Fig. 1).

**2.4.5 Cross Section (A)** — Product of the width and thickness  $b \times t$  ( see Fig. 1 ).

**2.4.6 Angle ( $\alpha$ )** — The angle between the upper face of the blade and the front face of the shank ( see Fig. 1 ).

## 2.5 Shape of Forks

**2.5.1 Standard Forks** — Forks, usually having a slight taper to the tip, the upper lifting face being horizontal, for lifting palletized or other suitable loads ( see Fig. 4 ).

**2.5.2 Broad Forks** — Forks wider than normal to handle loads which are not possible, or difficult to handle with standard forks. For example: drums in up-ended position ( see Fig. 5 ).

**2.5.3 Chisel Forks** — Forks tapered to a thin end to facilitate entry under loads, resting directly on the floor or on another load. For example: bales ( see Fig. 6 ).

**2.5.4 Multiple Prongs** — Multiple forks of round, triangular or fluted section to lift cylindrical loads, such as drums, barrels, lying in the horizontal position ( see Fig. 7 ).

**2.5.5 Brick Forks** — Narrow multiple forks designed to lift a palletless unit load of bricks ( see Fig. 8 ).

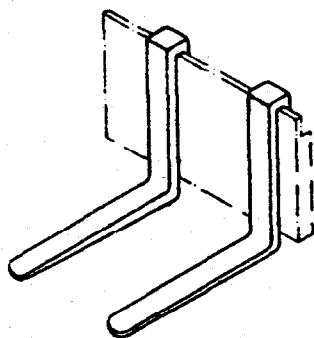


FIG. 4 STANDARD  
FORK

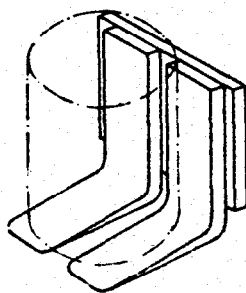


FIG. 5 BROAD  
FORK

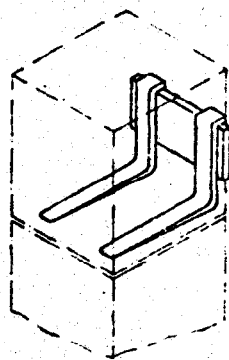


FIG. 6 CHISEL  
FORK

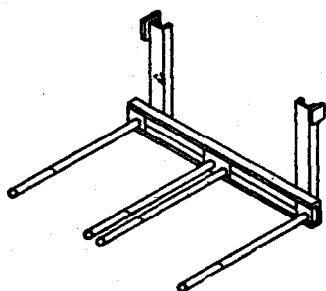


FIG. 7 DRUM FORK

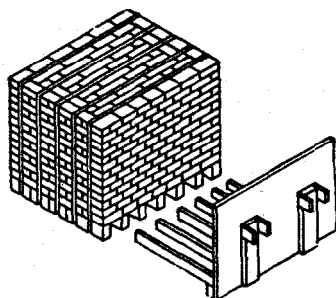


FIG. 8 FINGER FORK

**2.5.6 Fork Extension Sleeves** — Metal sleeves to slide on to the forks and locked to them when in the working position, in order to extend the fork length to facilitate dealing with light, bulky loads (see Fig. 9).

## 2.6 Fork Truck Attachments

**2.6.1 Ram Attachments** — An attachment fitted to the lifting carriage of a fork truck to enable hollow objects to be carried without the necessity for pallets, stillages or bins (see Fig. 10).

**2.6.2 Clamp Attachment** — A clamping attachment fitted to the lifting carriage of a fork truck to enable bales, cases or other similar loads to be picked up without the use of pallets or stillages (see Fig. 11).

**2.6.3 Paper Roll Clamp** — A clamp attachment fitted to a lifting carriage of a fork truck incorporating a rotating device to enable the handling of paper rolls (see Fig. 12).

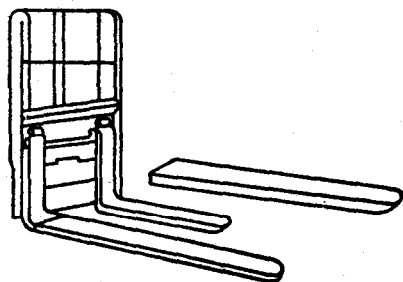


FIG. 9 FORK EXTENSION SLEEVES

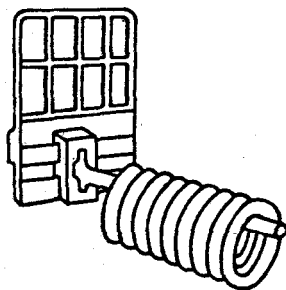


FIG. 10 BOOM ATTACHMENT

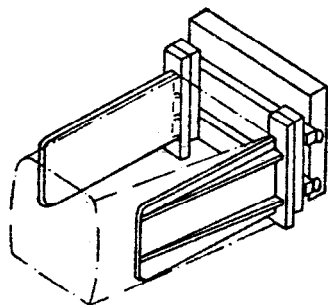


FIG. 11 CLAMP ATTACHMENT

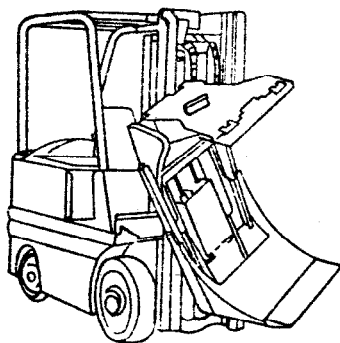


FIG. 12 PAPER ROLL CLAMP

**2.6.4 Clamp Arms** — The arms of the clamp that grip the load. These arms have smooth, ribbed, lined or studded faces, and may be fixed or pivoted, or may be shaped to fit the load being lifted ( see Fig. 13 and 14 ).

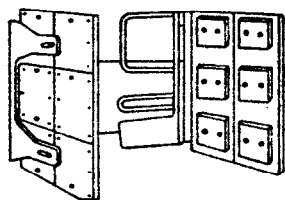


FIG. 13 CARTON CLAMP

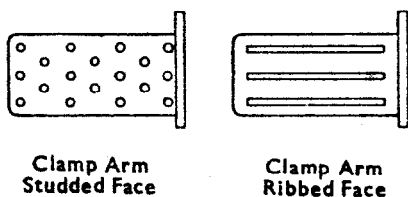
Clamp Arm  
Studded FaceClamp Arm  
Ribbed Face

FIG. 14 CLAMP ARMS

**2.6.5 Crane or Gooseneck** — An attachment fitted to the lifting carriage of a fork truck to lift odd shaped articles which can be so handled ( see Fig. 15 ).

**2.6.6 Spreader** — A rectangular frame carried on the forks of a fork truck and fitted to the lifting carriage by struts; the frame being provided with four suspension points, each with a lifting hook or twist locks, to lift a freight container evenly ( see Fig. 16 ).

**2.6.7 Barrel Grip** — An attachment fitted to the carriage of a fork truck that automatically grips the top rim of a barrel and has a shaped pad to stabilize the base, for lifting the barrel in the up-ended position ( see Fig. 17 ).

**2.6.8 Load Stabilizer** — A device fitted to the lifting carriage of a fork truck, and made to contact the top of the load to prevent displacement during movement and stacking ( see Fig. 18 ).

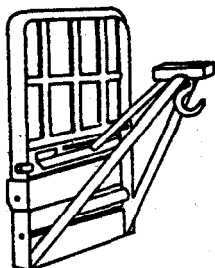


FIG. 15 CRANE OR JIB ATTACHMENT

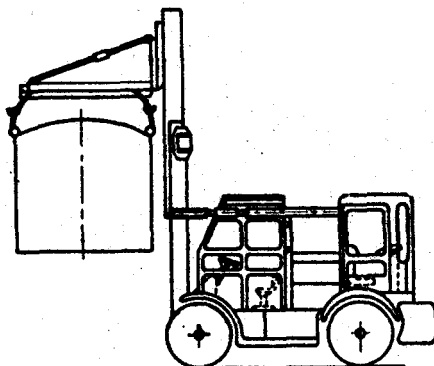


FIG. 16 CONTAINER LIFTING ATTACHMENT

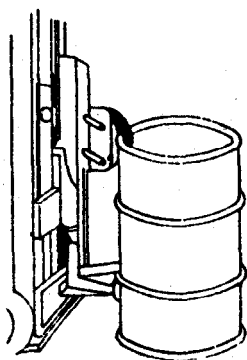


FIG. 17 DRUM GRIP

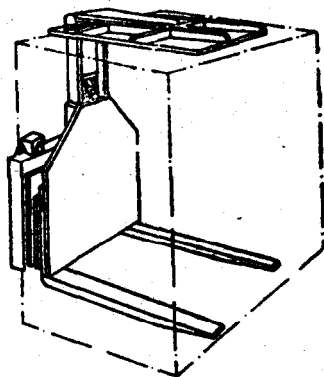


FIG. 18 LOAD STABILIZER

**2.6.9 Load Pusher Attachment** — An attachment fitted to the lifting carriage of a fork truck designed to push loads off the truck or lifting plate of a fork truck ( see Fig. 19 ).

**2.6.10 Push-Pull Attachment** — A load pusher attachment which, in addition, is designed to draw unit loads carried on a load board, usually composed of a sheet of fibreboard, on to the lifting plate or forks by gripping the near edge by a clamp ( see Fig. 20 ).

**2.6.11 Magnetic Lifting Device** — An electromagnet slung from the forks or a crane attachment of a fork truck, taking power from the truck ( see Fig. 21 ).

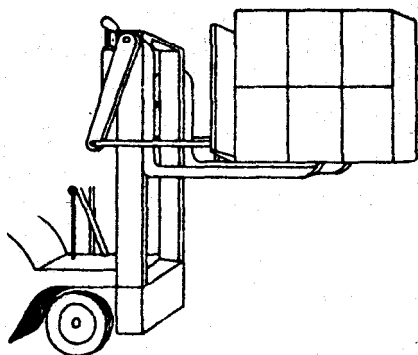


FIG. 19 PUSH-OFF ATTACHMENT

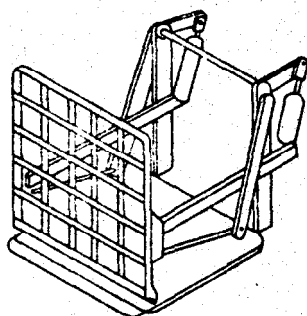


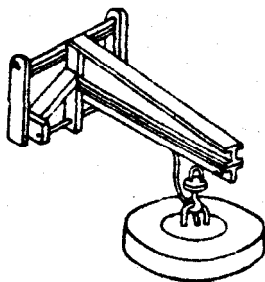
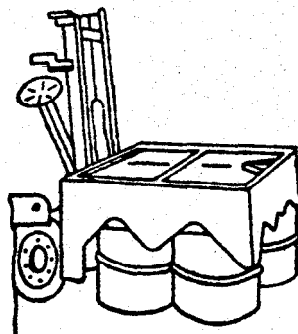
FIG. 20 PUSH-PULL ATTACHMENT

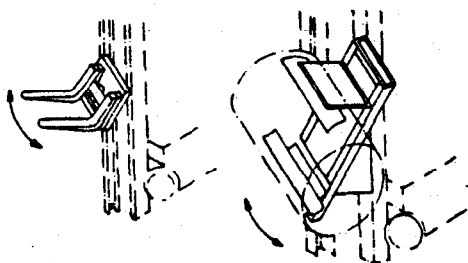
**2.6.12 Multiple Drum Clamp** — An attachment fitted to the carriage of a fork truck for lifting a number of drums from above in the up-ended position by means of integral clamping devices ( see Fig. 22 ).

**2.6.13 Rotating Head** — A fork or clamp attachment fitted to the lifting carriage of a fork truck to enable the load to be rotated ( see Fig. 23 ).

**2.6.14 Scissors Tongs** — An attachment fitted to the forks of a fork truck comprising a set of scissors arms arranged to grip load and suitably suspended from the forks of the truck ( see Fig. 24 ).

**2.6.15 Drop-Bottom Dumper** — A device fitted to the lifting carriage of a fork truck, enabling the bottom of a container to open and discharge its contents ( see Fig. 25 ).

FIG. 21 MAGNETIC LIFTING  
DEVICEFIG. 22 MULTIPLE DRUM  
CLAMP



23A Rotating Forks    23B Rotating Clamp  
FIG. 23 ROTATING HEAD

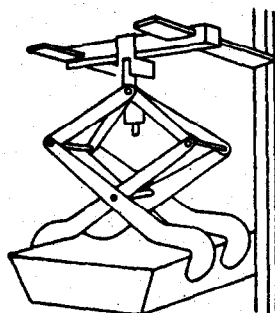


FIG. 24 SCISSORS TONGS

**2.6.16 Side Shift** — A device fitted to the lifting carriage to provide limited transverse movement of the load arms to assist in accurate positioning ( see Fig. 26 ).

**2.6.17 Side Shift Load Clamp** — A device fitted on the carriage comprising the features of a side shift and clamp ( see Fig. 27 ).

**2.6.18 Timber Grab or Claws** — An attachment comprising of movable forks and retaining claws to lift and retain loads of loose logs, beams, etc ( see Fig. 28 ).

**2.6.19 Scoop Attachment** — A scoop fitted to the carriage to handle loose material by scooping action ( see Fig. 29 ).

**2.6.20 Vacuum Lift** — An attachment fitted to the lifting carriage of a fork truck to support the load by suction pad or pads while lifting, the necessary vacuum being provided by a suitable device on the truck ( see Fig. 30 ).

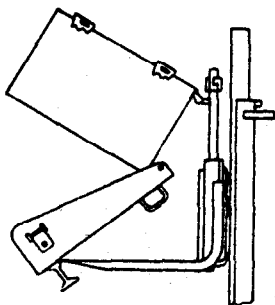


FIG. 25 SELF-DUMPING DEVICE

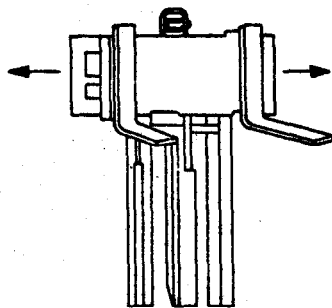


FIG. 26 SIDE SHIFT



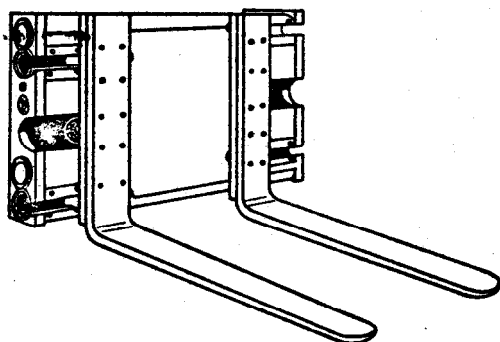


FIG. 27 SIDE SHIFT LOAD CLAMP

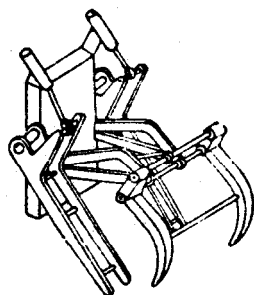


FIG. 28 TIMBER GRAB OR CLAWS

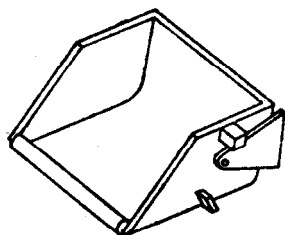


FIG. 29 TIPPING SCOOP

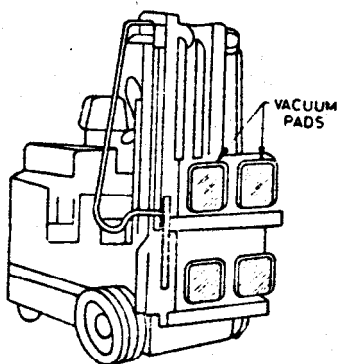


FIG. 30 VACUUM LIFT

## 2.7 Fork Truck Ancillaries

**2.7.1 Overhead Guard** — A device fitted overhead to protect the driver from the falling objects ( see Fig. 31 ).

**2.7.2 Load Guard ( Back Rest )** — A device fitted to the carriage of a fork truck to safeguard the load when it is tilted backwards ( see Fig. 32 ).

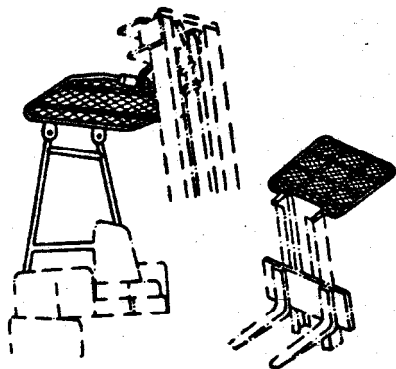


FIG. 31 DRIVER'S OVERHEAD GUARD

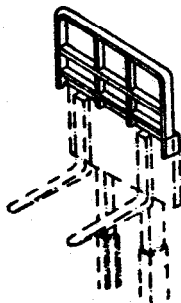


FIG. 32 LOAD GUARD ( BACK REST )

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

## INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 86 21, 27 91 31

Telegrams : Manaksanstha

### Regional Offices:

		Telephone
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Eastern : 5 Chowringhee Approach	CALCUTTA 700072	23-09 02
Southern : C. I. T. Campus, Adyar	MADRAS 600020	41 24 42

### Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 01
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Gangolri Complex, Bhadbhada Road, T.T. Nagar	BHOPAL 462003	6 27 16
21E Kalpana Area	BHUBANESHWAR 751014	5 36 27
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-5-56C L. N. Gupta Marg	HYDERABAD 500001	22 10 83
D-27T Todarmal Marg, Banipark	JAIPUR 302006	6 68 32
117/418 B. Sarvodaya Nagar	KANPUR 208005	8 12 72
Patilputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27